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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,427	05/21/2001	John Maxwell Cohn	BUR920000109US1	8449

21254 7590 . 01/13/2004

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EXAMINER	
BOWERS, BRANDON	
ART UNIT	**PAPER NUMBER**
2825	

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/862,427	COHN ET AL.	
	Examiner	Art Unit	
	Brandon W Bowers	2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4, 6-19, 22-31, 33, and 35-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Khouja et al., US Patent No. 5,682,320.

In reference to claim 1, Khouja teaches a method or analyzing power in an integrated circuit chip comprising dividing a clock cycle of the integrated circuit chip into a plurality of time periods, dividing the integrated circuit into a plurality of cells, performing a static timing analysis on the plurality of cells to obtain waveform data for each cell and each time period, and performing power distribution analysis using the waveform data (column 10, line 45 – column 11, line 22).

In reference to claim 2, Khouja teaches generating a pre-characterized cell library containing cell characterization data and using the cell characterization data to perform static timing analysis (column 11, lines 19-22).

In reference to claim 4, Khouja teaches physically designing the chip using the pre-characterized cell library (Figure 3).

In reference to claim 6, Khouja teaches wherein the waveform data executed by the method is used to physically design the chip in the next execution of the method (Figure 3).

In reference to claim 7, Khouja teaches wherein the static timing analysis determines when, where, and the amount of current require for the IC chip (column 10, line 45 – column 15, line 51).

In reference to claim 8, Khouja teaches wherein every circuit on the IC chip switches within a given clock cycle (column 15, line 54-column 18, line 35).

In reference to claim 9, Khouja teaches wherein static timing analysis ignores circuits that cannot switch during a same time period (column 15, line 54-column 18, line 35).

In reference to claim 10, Khouja teaches wherein each time period is greater of equal to a rise or fall time that captures 95% of signals on an IC (column 15, line 54-column 18, line 35).

In reference to claim 11, Khouja teaches wherein static timing analysis comprises assigning a charge used by a circuit to at least one time period, and calculating node voltages for each time period (column 10 line 45- column 18, line 35).

In reference to claim 12, Khouja teaches wherein static timing analysis further comprises checking node voltages against allowable limits, calculating node densities using the node voltages and checking node voltages against electromigration and local heating rules (column 10 line 45- column 18, line 35).

In reference to claim 13, Khouja teaches wherein node voltages calculated in the static timing analysis are back annotated in the next run of the timing analysis to re-calculate node voltages (column 10 line 45- column 18, line 35).

In reference to claim 14, Khouja teaches wherein performing a power distribution analysis comprises generating a graphical map of a power distribution (column 9, lines 15-59).

In reference to claim 17, Khouja teaches wherein the method is performed by using digital data processing apparatus(column 9, lines 15-59).

In reference to claims 15-16, 18-19, 22-31, 33, and 35-40 drawn to a system and programmable storage medium claiming all the same limitations as described above in claims 1-2, 4, 6-14, and 17, the same rejections as outlined above apply.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 20 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khouja et al., US Patent No. 5,682,320 in view of "P1497 DRAFT Standard for Standard Delay Format", IEEE.

Khouja teaches generating a pre-characterized cell library containing cell characterization data as described above. Khouja does not teach wherein the cell characterization data comprises charge data, timing data, voltage data, temperature data, load data, input slew data, direct current data, and process corner data. The P1497 DRAFT teaches that pre-characterized cell libraries containing cell

characterization data include charge data, timing data, voltage data, temperature data, load data, input slew data, direct current data, and process corner data (pages 15-66). Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of invention to include charge data, timing data, voltage data, temperature data, load data, input slew data, direct current data, and process corner data in the pre-characterized cell library containing cell characterization data as described above by Khouja because it is the standard adopted by the industry.

Claims 5, 21 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khouja et al., US Patent No. 5,682,320 in view of Fallah-Tehrani et al. US Patent No. 6,405,348.

Khouja teaches claim 1 as described above. Khouja does not teach extracting parasitic resistors, capacitors, and inductors to generate extracted signal net information which is used to perform the static timing analysis. Fallah-Tehrani teaches extracting parasitic resistors, capacitors, and inductors to generate extracted signal net information which is used to perform the static timing analysis (column 7, lines 43-48). Accordingly, it would be obvious to a person of ordinary skill in the art at the time of invention to incorporate the teachings of Fallah-Tehrani toward extracting parasitic resistors, capacitors, and inductors to generate extracted signal net information which is used to perform the static timing analysis into the teachings of Khouja in claim 1 as described above because the effects of crosstalk in static timing analysis can be significant.

In reference to claims 20-21, 32, and 34 drawn to a system and programmable storage medium claiming all the same limitations as described above in claims 3 and 5, the same rejections as outlined above apply.

Response to Arguments

Applicant's arguments filed 5 November 2003 have been fully considered but they are not persuasive. Applicant states that Khouja fails to teach or suggest dividing a clock cycle into a plurality of time periods or performing a static timing analysis for the plurality of cells to obtain current waveform data for each cell and each time period. Interpreted broadly, the weighted transition time is the clock cycle and the transition time of each cell pin is a time period. Khouja teaches using a static timing analyzer to compute the transition time for each cell input net (column 11, lines 24-27). These transition times are used to calculate a weighted transition time (column 11, lines 8-11). Accordingly Khouja does teach dividing a clock cycle into a plurality of time periods and performing a static timing analysis for the plurality of cells to obtain current waveform data for each cell and each time period.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., dividing a single, individual clock cycle into "buckets") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon W Bowers whose telephone number is

(703)305-4387. The examiner can normally be reached on 8:30 am until 5:00 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (703)308-1323. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1782.

BWB

MATTHEW SMITH
SUPERVISORY PATENT EXAMINER
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